NEDA SHAHIDI

Kellnerweg 4, 37077 Göttingen, Germany | +49 551 3851 307 | nshahidi@dpz.eu

Objective My goal is understanding the neural correlates of decision making. In particular, examining the dynamics of neural populations, involved in planning goal-directed behaviors, as well as understanding how the general physiological state of beings impacts the quality of their decisions.

RESEARCH

Head of the Early Career Research Group — June 2023 -now
University of Göttingen, Göttingen, Germany

- Neural correlates of the state of vigilance in human and macaque

Post-doc Scientist at Sensory Motor Group — Aug 2020- May 2023
German primates Center, Göttingen, Germany

- Representation of space and others in the fronto-parietal network during foraging
- Design and implementation of an exploration platform for behavioral and neural recording from free-roaming rhesus macaques.

Post-doc Scientist at Gollisch Lab — Aug 2018- Aug 2020
Dept. of Ophthalmology, Universitätsmedizin Göttingen, Göttingen, Germany

- Generalization of encoding models of retinal ganglion cells across species and stimuli

Graduate Research Assistant at Dragoi Lab — Jan 2012- July 2018
Dept. of Neurobiology and Anatomy, Univ. of Texas, Houston, Texas

- Neural correlates of foraging strategy in prefrontal cortex of free-moving macaques
- Enhancement of perceptual accuracy and the relevance of coordinated spikes
- Multi-site micro-stimulation of cortical neurons in various frequency bands

Scientist at Priebe Lab — Nov 2010- Aug 2011
Dept. of Neurobiology, The Univ. of Texas at Austin, Austin, TX

Classification of simple and complex neurons in cat primary visual cortex, using whole-cell patch clamp recording

Learning and volunteering

Felleman Lab — Sep 2011- Dec 2011
Dept. of Neurobiology and Anatomy, Univ. of Texas, Houston, Texas

- Response characteristics of area V2 and V4 of macaque brain using information theory

RoboSoccer(Stone) Lab — Sep 2006- Aug 2010
Dept of Computer Sciences, The Univ. of Texas at Austin, Austin, TX

- Response delayed policy for autonomous intersection management
- A mixed reality framework for autonomous intersection management

System Control Lab — Jun 2002- Aug 2005
Dept of Electrical and Computer Eng, Univ. of Tehran

- Controlling a DC motor using a network model of Amygdala and Orbito-frontal cortex
- Self-adaptive memetic algorithms for path planning of mobile robots

EDUCATION

Ph.D. in Neuroscience — 2013 (candidacy) - 2018
University of Texas, Health Science Center at Houston, Houston, Texas
Adviser: Valentin Dragoi
Dissertation title: population codes and their correlates in decision making

M.Sc. in Electrical Engineering — 2007- 2010
The University of Texas at Austin, Austin, Texas
Adviser: Peter Stone
Thesis title: Response delayed policies for autonomous intersection management

B.Sc. in Electrical Engineering — 1999- 2003
University of Tehran, Tehran, Iran
Adviser: Caro Lucas
Thesis title: Application of memetic algorithms to the path planning of mobile robots

TEACHING AND MENTORING

Research project supervisor — 2021-now
German Primates Center, Göttingen, Germany
Supervising PhD., M.Sc. and B.Sc. students
Various universities in Germany and United States

Research project supervisor — 2015-2018
Graduate School of Biomedical Science, Univ of Texas, Houston
Co-supervising 1 intern and 2 early-stage PhD students

Teaching Assistant — Fall 2009, Spring 2010
Texas Advanced Computing Center, Univ. Texas at Austin
Graduate-level “Parallel Computing” and “Scientific and Technical Computing”

Lab Teaching and Mentoring — Fall 2007, Spring 2009
Dept of Electrical and Computer Eng., Univ. of Texas at Austin
Under-graduate level “Electronic Lab”

Teaching Assistant — Spring 2002, Fall 2002, Spring 2003
Dept of Electrical and Computer Eng., Univ. of Tehran
Under-graduate level “Computer Architecture” and “Digital Logic Circuits”

LECTURES AND OUTREACH

Invited:

Back to decision-making, Tapping into ecologically-relevant aspects of brain and behavior — 2023
Max Planck Institute for Biological Cybernetics, Tübingen, Germany

What happens in the brain when we make decisions? — 2023
Club Calenberg-Pattensen, Hanover, Germany

Trends in Neurosciences: public communication aspects, and example misconceptions about testing on primates — 2022
Professional Learning community, Göttingen, Germany

Population coding and its correlates in decision making — 2019
Institute for Research in Fundamental Sciences, Tehran, Iran

Selected contributions:

Population Coding of strategic variables during foraging in free-moving macaques *Neuromatch virtual conference*	2020
Higher-order coordination of visual cortical activity enhances perceptual accuracy *Gulf Coast Conference, Houston, Texas*	2017

Other public outreach activities:

Teaching Neuroscience course with brainSTEM team, aiming to promote STEM fields in the young generation, KIPP Sunnyside high school, Houston, TX (2015-2016)	2015-2016
Interactive presentations at the annual open house of Univ. of Texas (*Austin, TX, 2007-2009*), Brain Night (*Houston, TX, 2015-2017*), Nacht des Wissens (*Goettingen, Germany, 2022*)	2007-2022

PUBLICATIONS

Journals and peer-reviewed conferences

- Ksiezak K., Burghardt R., **Shahidi N.**, Gail A., Sinz F.H., "Predicting choices in a dyadic foraging task using gated recurrent networks", book of abstracts for *The 12th International Conference on Complex Networks and their Applications*, Menton Riviera, France.
- **Shahidi N.,** Schrater P., Paranjuli A., Franch M., Wright A., Pitkow X., Dragoi V., "Population coding of strategic variables during foraging in freely-moving macaques", *Nature Neuroscience (accepted)*
- Milton R., **Shahidi N.,** Dragoi V., "Dynamic states of population activity in prefrontal cortical networks of freely-moving macaque", *Nature Communication, 2020*
- **Shahidi N.,** Andrei A.R., Hu M., Dragoi V., "Higher-order coordination of cortical activity modulates perceptual accuracy", *Nature Neuroscience, 2019*
- **Shahidi N.**, Hu M., Andrei A.R., Dragoi V., "Behaviorally relevant information is revealed in synchrony of triplets and quartets but not pairs", *extended abstract in Computational and System Neuroscience (COSYNE)*, Salt Lake City, UT, 2015
- **Shahidi N.**, Hu M., Andrei A.R., Dragoi V., "Changes in laminar synchrony in V1 reflect perceptual decisions", *Society for Neuroscience (SfN) meeting*, San Diego, CA, 2013 and *extended abstract in COSYNE*, Salt Lake City, UT, 2013
- Au T.Z., **Shahidi N.**, Stone P., "Enforcing Liveness in Autonomous Traffic Management," *Proceedings of the Twenty-Fifth Conference on Artificial Intelligence*, August 2011
- **Shahidi N.**, Au T.Z., Stone P., "Batch Reservations in Autonomous Intersection Management," *extended abstract, in proceeding of Autonomous Agents and Multi-Agent Systems (AAMAS)*, Taipei, Taiwan, 2011
- **Shahidi N.**, Esmaeilzadeh H., Abdollahi M., Lucas C., "Memetic Algorithm Based Path Planning for a Mobile Robot," *Inter. J of Information Technology*, Vol. 1, Num. 4, 2004
- **Shahidi N.**, Esmaeilzadeh H., Abdollahi M., Ebrahimi E., Lucas C., "Self-Adaptive Memetic Algorithm: An Adaptive Conjugate Gradient Approach," *Proceedings of 2004 IEEE Conference on Cybernetics and Intelligent Systems (CIS)*, Singapore, 2004

Dissertation

- **Shahidi N.**, "Population codes and their correlates in decision " (2018). *UT GSBS Dissertations and Theses (Open Access)*. 888

Meeting abstracts and Pre-prints

- **Shahidi N.,** Rozenblit F., Khani M.H., Schreyer H.M., Gollisch T., "Filter-based models of suppression in retinal ganglion cells: generalization across species and stimuli", BioRxiv 2022
- **Shahidi N.,** Schrater P., Wright A., Pitkow X., Dragoi V., "Population coding of strategic variables during foraging in freely-moving macaques", *bioRxiv*, 2019.
- Kumar A., Wu Z., **Shahidi N.**, Dragoi V., Pitkow X., Schrater P., "Interring latent states from foraging behavior", *Cognitive Computational Neuroscience (CCN)*, New York, NY, 2017
- **Shahidi N.**, Priebe N., Ferster D., "A unimodal distribution of linear and nonlinear spatial responses in primary visual cortex", *SfN meeting*, Washington, DC, 2011